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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,211	09/19/2003	Miyoko Kawashima	1232-5161	8297
27123	7590	06/30/2005	EXAMINER	
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			FULLER, RODNEY EVAN	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/666,211

Applicant(s)

KAWASHIMA ET AL.

Examiner

Rodney E. Fuller

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

RODNEY FULLER
PRIMARY EXAMINER

R. Fuller

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Remarks

1. In response to applicant's Amendment, dated April 12, 2005, the examiner acknowledges the cancellation of claims 6-17. Claims 1-5 are pending.

The examiner acknowledges the correction of the objection to the Drawings set forth in the Office Action mailed January 12, 2005.

Regarding the 35 U.S.C. 112, first paragraph, rejection of claims 1-17, the examiner has considered the applicant's arguments in light of the amended claims and withdraws the rejection.

Regarding the 35 U.S.C. 112, second paragraph, of claims 1-17, the applicant notes that Figure 12 and the specification defines s- and p-polarization as follows: "the s-polarized light is polarized in a direction perpendicular to the section including the optical axis of the projection optical system OP, and the p-polarized light is polarized in a direction parallel to the section." Further, the applicant notes that Figure 1A illustrates "the annular shape is filled with s-polarized light." The applicant states that the meaning of the cited phrase "s-polarized light polarizes in a tangential direction of the annular shape" is clear enough for an ordinary skill in the art to understand the invention. The examiner has considered the applicant's arguments in light of the amended claims and maintains the rejection. The examiner notes that the definition of s- and p-polarized light as shown in Figure 12A and 12B is the typical definition of s- and p-polarized light. However, the description of the light being s-polarized in a tangential direction of the annular shape is inconsistent. The applicant (arguments and on page 21 of

specification) indicates that the arrows in an the annular part 12A refers to s-polarized light. The examiner notes that in Figure 1A the arrows at the top and bottom of the annular region is p-polarized light and the left and right portion of the annular region is s-polarized light if one uses the coordinate system shown in Figure 12A. Alternatively, if s-polarized light is considered to be going "into the page" of Figure 12A and p-polarized light is considered to be "in the plane" of the page of Figure 12B, then the top portion of the annular region of Figure 1A would be considered s-polarized light and the left and right regions would be considered p-polarized light. Further, it is noted that the specification (page 21) states that the region 14B has a mixture of s- and p-polarized light which is shown as a combination of horizontal and vertical arrows. It appears from the drawings, that the applicant may intend to describe and claim that the light is linearly polarized around the annular shape, wherein the phase of the polarized light changes around the annular shape. (See Rejection below).

Regarding the 35 U.S.C. 102(b) rejection of claims 1-17 as being anticipated by Shiraishi (US 6,404,482), the applicant make the argument that Shiraishi does not teach "illuminating a mask using an illumination system that forms an effective light source having a first part that mainly includes s-polarized light and a second part that mixes s-polarized and p-polarized light. The examiner has considered the applicant's arguments and maintains the rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are related to (claim 1) "...an illumination system that forms an effective light source having a first part that includes only s-polarized light..." (claims 2) "...wherein the first part has an annular shape in which the s-polarized light polarizes in a tangential direction of the annular shape."

The applicant defines s- and p-polarized light on page 13 referring to Figures 12A and 12B. On page 20, lines 11-19 of the specification and claims 1-2, the applicant states "s-polarized light polarizes in a tangential direction of the annular shape." (See Figure 1A as example).

The claims, specification, and drawings are unclear since the applicant states (claims, specification) that the light is s-polarized in a tangential direction of the annular shape. However, the polarization state would be p-polarized at the top and bottom, s-polarized at the left and right of the light source shown in Figure 1A as an example. Thus, the light cannot be "s-polarized in a tangential direction of the annular shape." It appears from the drawings, that the applicant may intend to describe and claim that the light is linearly polarized around the annular shape, wherein the phase of the polarized light changes around the annular shape. Alternatively, the applicant may intend to

describe and claim that the light is s-polarized around the annular shape and not tangential to the annular shape, which is contrary to any of the figures. Further, it is unclear how any structure described in the specification or shown in the drawings can split the light into s- and p-polarized light or mix the s- and p- polarized light.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiraishi (US 6,404,482).

As best the examiner can ascertain the claimed invention, Shiraishi discloses all the structure set forth in the claims.

Regarding independent claims 1, Shiraishi discloses a projection optical system for illuminating a mask (Fig. 4, ref. # R) with an illumination system that utilizes a first and second regions with two different polarization states (see Figure 7, FB1, FB2).

The dependent claims are likewise met by Shiraishi.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

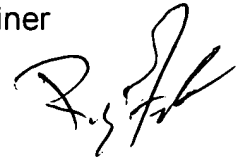
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney E. Fuller whose telephone number is 571-272-2118. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rodney E Fuller
Primary Examiner
Art Unit 2851

A handwritten signature in black ink, appearing to read 'R. E. Fuller', is written over the printed name of the examiner.

June 23, 2005



Approved
6/29/05
PA

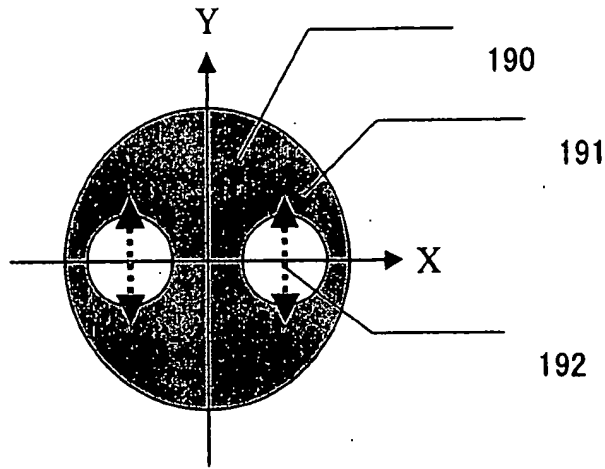


FIG. 18

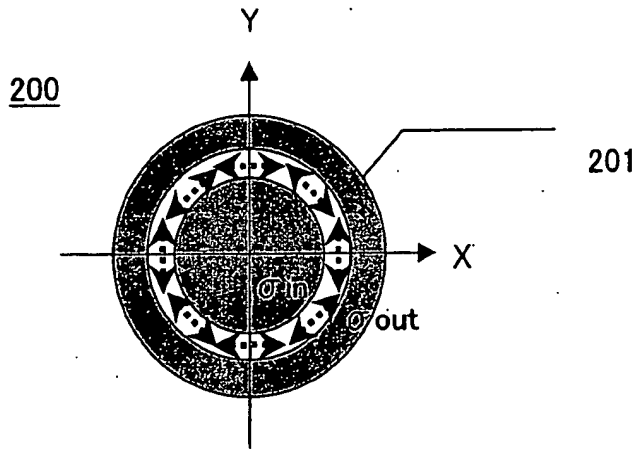


FIG. 19 PRIOR ART